GALGOTIAS UNIVERSITY

ADMISSION NUMBER												

School of Engineering

B.TECH Electronics and Communication Engineering
Mid Term Examination - Nov 2023

Duration : 90 Minutes
Max Marks : 50

Sem I - G2UC101B - Introduction to Digital System

General Instructions
Answer to the specific question asked
Draw neat, labelled diagrams wherever necessary
Approved data hand books are allowed subject to verification by the Invigilator

1)	Convert hexadecimal (FF216) to binary.	K2	(2)
2)	What is an XOR gate? Draw its truth table.	K1	(3)
3)	(a) Convert the Octal number (1051) to decimal. (b) Convert the hexadecimal number (1FF) to Octal.	K2	(4)
4)	Explain Binary Half Subtractor circuit.	K2	(6)
5)	Prove the following identities using Boolean laws: (i) A+A.B=A (ii) (A + B) . (A + C) = A + B . C	K3	(6)
6)	Applying the principles of Boolean algebra, analyze the given Boolean expression, F(X, Y, Z) = X′Y + YZ′ + YZ + XY′Z.	K3	(9)
7)	Minimize the following boolean function-F(A, B, C, D) = Σm(1, 3, 4, 6, 8, 9, 11, 13, 15) + Σd(0, 2, 14) and also draw its logical circuit using basic logic gates.	K4	(8)
8)	Minimize the following boolean function-F(A, B, C) = Σm(1, 2, 5, 7) + Σd(0, 4, 6). Aslo draw the logical circuit using only NOR universal gates.	K4	(12)
	OR		
	Describe how the NOR gate works as a universal gate in digital circuits.	K4	(12)